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ABSTRACT

This agriculture extension service publication of Pennsylvania State University discusses the damage from and control of vertebrate pests. Specific discussions describe the habits, habitat, and various control measures for blackbirds and crows, deer, meadow and pine mice, European starlings, and woodchucks. Where confusion with non-harmful species might exist, the identification of the species is emphasized. Control methods described for each species range from hunting and poisoning to fencing and frightening. Black and white pictures are presented for most pest species. A table of suggested chemicals is also included. (MR)

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CONTROL OF VERTEBRATE PESTS OF AGRICULTURAL CROPS

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BLACKBIRDS

Most bird damage to crops is done by red-winged blackbirds and grackles with starlings and brownheaded cowbirds mixed into the foraging flocks. Male RED-WINGED BLACKBIRDS are black with a scarlet shoulder patch, but the females lack this distinctive marking; females are brownish with streaked breasts. GRACKLES are robin-sized with long keel-shaped tails. Adult grackles are iridescent and glossy black; the young are brown. STARLINGS are long-billed, short-tailed, iridescent and glossy black with light-colored speckles over the body. COWBIRDS are relatively small. Males are glossy black with a rich brown head, and the females are grayish brown with a light throat patch.

HABITS

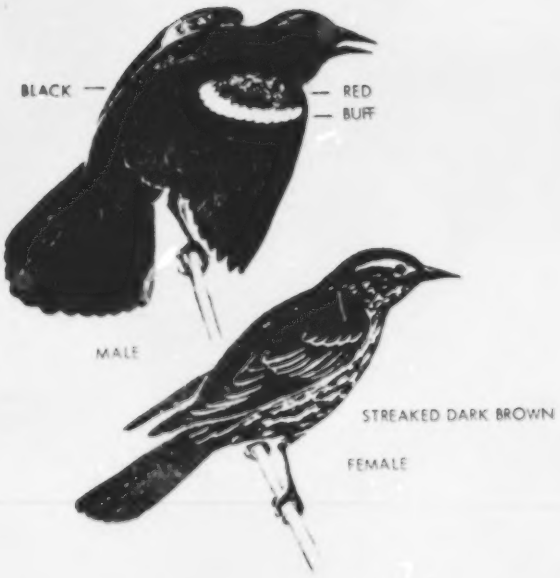
Redwings rear two broods annually in nests in marshes and hayfields. Grackles prefer to live in colonies and to rear their single brood in evergreens, dense thickets, and vines. Starlings nest in hollow trees, bird houses, or other cavities. Cowbirds are parasites; they lay their eggs in other birds' nests, then depend on the other species to hatch and rear the young.

Blackbirds feed extensively on insects, especially during the nesting season, although 5 to 10 percent of their diet consists of corn and other grain. By early July, when small grain is harvested, grackles have completed their nesting and some redwings have finished nesting. By early August, flocks of redwings and grackles are joined by migrants from distant areas, and starlings and cowbirds mix into the large aggregate flocks of blackbirds.

Blackbird flocks make daily flights from their roosts to crop fields, woods, and grassland. At dawn the birds depart in different lines of flight. They may feed as far as 20 miles from their roost. Redwings usually break into smaller flocks, while grackles tend to stay in large bands throughout the day.

During August, blackbirds damage standing corn from the time it enters the milk stage until harvest. Redwings and grackles tear open the husk and feed on the kernels. The shredded husk shrivels and exposes more kernels. Cowbirds feed on the kernels exposed by the other blackbirds. The opened husk exposes grain to the weather and causes more grain loss.

BIRDS COMMONLY ASSOCIATED WITH AGRICULTURAL CROP DAMAGE



RED-WINGED BLACKBIRD

BROWN-HEADED COWBIRD

STARLING

COMMON CROW

COMMON GRACKLE

CONTROL

Damage to fruits, vegetables, small grain, and corn may be avoided or reduced by several methods: modified crop culture; changing bird behavior by frightening the flocks; trapping when bird numbers are limited; excluding the birds from susceptible crops; and using pesticides. Usually a combination of methods is superior to a single method.

Cultural Control Methods -- Planting should be coordinated so that most of the susceptible crops in an area enter the vulnerable stage at the same time. Bird damage is greatest in fields near roosts, near nesting cover, or on flight lines. Removing roost cover and substituting less susceptible crops should be considered. Some corn varieties have resistance to bird damage.

Frightening Devices -- Gas exploders, shellcrackers, firecrackers, shotguns, recorded blackbird alarm calls, and electronic sound devices may scare blackbirds from fields. This does not necessarily chase the birds to a nearby crop; the birds may shift to natural food if it is available.

Scare devices should be activated when the crop first becomes susceptible or when blackbirds first begin feeding on the crop. Devices should be used throughout the day but especially during early-morning and late-afternoon feeding periods. Several types of scare devices are better than a single device, and their location should be changed frequently.

Gas exploders are the most commonly used scare devices. Effective range varies with the locale, but usually one exploder is used for every 10 acres. For best results, exploders should be mounted above the height of the crop.

Shotguns using regular ammunition or shellcrackers are effective. The shellcracker discharges a projectile that explodes in the air some distance from the gun. (Use caution with shellcrackers in dry vegetation because of fire hazard.)

Recorded alarm calls and other electronic sounds effectively repel birds, but the equipment is costly.

Trapping -- When limited numbers of blackbirds invade orchards or crops other than corn, traps may help. A bird trapping permit is required. Contact the District Game Protector or Pennsylvania Game Commission, P.O. Box 1567, Harrisburg, Pennsylvania 17120, for information about trap plans and permits.

Excluding blackbirds -- When fruits, vegetables, or other crops in limited areas are attacked by birds, durable netting to cover the crop will effectively keep birds away. This is economically feasible in small areas supporting high-value crops.

Pesticides -- Few pesticides are registered for use against bird damage.

Blackbirds pull sprouting grain and other seeds. Several seed treatment repellents are registered for protection against this damage. Some of these repellent compounds, however, have characteristics that reduce germination.

A pesticide registered for protecting standing corn against blackbirds works on the principle of frightening the flock by the alarm calls of the few birds that eat the toxic bait. Only one percent of the cracked corn bait applied to the field contains the toxicant. Skilled applicators can apply this blackbird pesticide from aircraft when flights are well organized with maps, aerial photographs, and ground coordination with growers in an area. Timing the applications to be made as corn goes into milk-dough stage and as birds first attack the fields is critical. Flying weather may present limitations. Calibration of the proper amount of material to apply should be done using untreated grain of the same size as the commercially treated bait. Field edges should not be treated.

During winter, many blackbirds migrate south, but some wintering flocks remain in Pennsylvania. Starlings usually predominate in these winter flocks; some grackles, brown-headed cowbirds, and a few redwings are also present. Lack of readily available food forces the birds to be scavengers. Livestock feed lots and poultry operations with open food supplies are often invaded by winter starling and blackbird flocks. A toxicant pesticide for these two special-use locations--feedlots and poultry operations--can effectively reduce the starling problem. Observations of time, locations, and feeding patterns should be made to aid in placement of treated bait and to determine that no protected birds are present. This toxicant must be placed in feeding stations or scattered on solid areas to which the birds have access, but from which livestock and poultry are excluded.

The starlings will not die on the spot; most birds die at their roosts or along flight lines to the feeding areas.

Prebaiting the area may be necessary for successful use of this material. Do not re-treat before three days have passed because birds receiving a lethal dose may require that much time for the pesticide to be effective.

If protected birds may be endangered or question of hazard occurs, consult local wildlife authorities before using this bird control method.

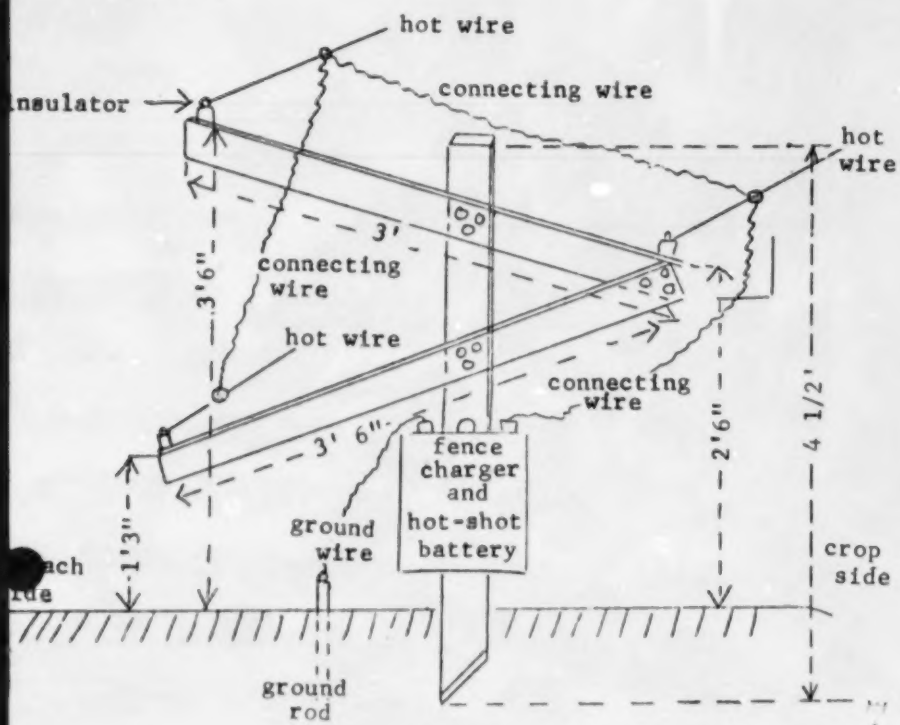
DEER

The white-tailed deer is of great economic importance in Pennsylvania; large sums of money are spent annually by hunters of this valuable game animal. When food and cover are plentiful, white-tailed deer do not range very far. They tend to stay in one area for long periods of time, moving only when food and shelter becomes inadequate or weather forces them to seek more favorable locations. In some areas, the local deer population may increase to a point where animals cause a great deal of damage by browsing on agricultural and forest crops. At this time, steps must be taken to discourage them.

HUNTING

Depending on state regulations, problem deer can be removed during the regular deer-hunting season. Landowners can encourage hunting in the problem areas which deer frequent. This will enhance the hunter's chances and also remove deer which are causing damage.

FENCING



PLAN FOR ELECTRIC DEER FENCE

Another effective means for keeping deer out of crop areas is a deer-proof fence. The value and size of the crop area will determine whether fencing is feasible. The initial cost of erecting the fence may seem high, but will pay for itself in increased crop yields.

Electric Deer Fence -- Electric fences are designed primarily for summer use.

During winter, the bottom strand of wire may become buried in snow. (If this happens, shut off the electricity in this wire.) If there is a permanent fence or stone wall, the electric fence should be placed 15 to 20 feet outside the permanent fence on the approach side or 25 to 30 feet inside (on the crop side). Weeds and grass must not touch the low wire, as this will cause grounding.

Materials Needed

For one-post and two-bracket unit (posts spaced 30 to 45 feet apart)

- Copper-covered steel-core wire of 18 gauge
- One fence charger with hot-shot 6-volt battery
- One ground wire with ground rod
- 10 1/2 linear feet of 1- x 2-inch wood stock
- 3 large porcelain knob insulators
- 9 nails for cross-arms assembly

Woven-wire Fence -- Under most conditions, an 8-foot woven-wire fence will keep deer out of an area. The woven-wire fencing is available in 4-foot widths and can be used to construct an 8-foot fence. The stay wire should not have more than a 6-inch spacing. Barbed wire may be strung above the woven wire if more height is desired. The fence should be inspected periodically and breaks repaired.

REPELLENTS

Repellents are another method of reducing deer damage. Repellent applications can be divided into two general classes: winter, or dormant season applications; and summer, or growing season applications.

Three factors determine the effectiveness of a repellent: the appetite of the animals; the weather conditions; and the thoroughness of application. Deer are less likely to browse on agricultural or forest crops that have been treated with a repellent. However, a lack of normal food may cause deer damage even though a repellent has been applied. Weather conditions affect the length of time that a repellent remains effective. During seasons of high precipitation, the effectiveness of a repellent will be short-lived because of erosion and dilution. The degree of thoroughness used when applying repellents will determine the amount of protection they give.

Applying repellents to only terminal growth will provide sufficient protection. This method is more economical than treating an entire tree. All terminal tips should be treated to a height of 6 feet above the expected snowline.

Summer applications are similar to winter, except that it may be necessary to apply repellents more frequently in order to cover new growth.

NOTE: Edible plants, treated with repellents, must not be used for food or feed.

MEADOW MICE

DISTRIBUTION AND HABITS

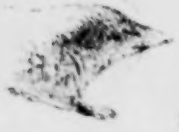
Meadow mice are Pennsylvania's most numerous and widely distributed small mammal. They are found in all sections of the Commonwealth.

Meadow mice are small, chunky, ground-dwelling (terrestrial) rodents. Mature specimens are about seven inches in overall length. The tail is short--less than two inches--and the hind foot is shorter than one inch. Mature specimens are chestnut-brown mixed with black; the underparts are dark gray. Feet are brownish, and the thinly haired tail is dark on the upper surface shading to a lighter gray beneath. Eyes are small and black. The ears are furred, and do not project much above the hair. Young meadow mice are uniformly gray.

Meadow mice have other common names, including ground moles, field mice, meadow moles, and voles. These terms frequently lead to confusion in identification. When the numbers of meadow mice are large, population control may be desired. It is extremely important that any small mammal be positively identified before starting control activities, since materials or methods effective against one species may not be useful on another.

Meadow Mouse

Mole



Shrew

Meadow mice are frequently confused with moles, shrews, and pine mice. Moles have greatly enlarged front feet, with prominent digging claws. Shrews have long, pointed snouts, and pointed front teeth. Meadow mice have rounded, somewhat blunt snouts, and their front teeth are chisel-shaped. The distinction between meadow and pine mice is less obvious. The best way to compare these mice is by hind foot and tail length. The hind foot of the pine mouse is about the same length as its tail; the tail of the meadow mouse is twice the length of its hind foot. The fur of the pine mouse is softer than that of the meadow mouse, but this distinction is difficult to make unless both specimens are available for comparison.

Meadow mice flourish in extensive grassy or weedy areas such as old fields and moist swales with rank growths of succulent green plants. However, stream and pond banks, orchards, pastures, hay fields, and fence rows also provide suitable habitat for these mammals. Meadow mice occasionally invade low-growing shrubbery and plant nurseries. They are strict vegetarians.

Meadow mice are active the year round. They create and use systems of surface runways, keeping them free of obstructions. Overhanging vegetation hides the meadow mice as they travel along the runways. Such travel lanes, about 1 1/2 inches wide, are reliable indicators of the presence of meadow mice.

Bits of freshly cut vegetation and accumulations of mouse droppings in the runs are positive evidence they are being used. Vegetation, small roots, or mold in the paths indicate that mice no longer use them. Meadow mice

may build and use underground tunnels; and they will often use sub-surface runs made by moles or pine mice. Under the cover of snow, meadow mice may travel freely without fear of being seen and captured. When snow melts, there may be evidence of runways in lawns or grassy areas where mice would not have traveled had there been no snow cover.

Meadow mice spend nearly all their time at or below ground level. However, in periods of snow or flooding, they may climb small trees and shrubs.

Meadow mice nests are globular structures of dry grass about six to eight inches in diameter. Nest cavities are roofed and usually located on the surface of the ground, under old boards, discarded metal, logs, or other such cover. In winter, above-ground nests may be made in deep snow, but these are temporary and will be vacated when the snow melts.

The breeding potential of meadow mice is high. Mating begins in the spring as soon as weather moderates and plant growth starts, and continues into the fall months. Litters of two to nine young are produced at monthly intervals. Female meadow mice are capable of reproducing at the age of three weeks. Fortunately, natural forces in the environment hold down the number of meadow mice. Many animals capture meadow mice. Among these are foxes, weasels, skunks, snakes, hawks, owls, dogs, and cats. In the absence of mice, the predators might turn to other prey more valued by man.

Natural plant succession in unfarmed areas, in which woody plants encroach on grasses and weeds, means less hospitable habitat for meadow mice. Fires, floods, and crop rotation (which includes soil tillage) take heavy tolls of resident meadow mice. When their numbers are high, mice are subject to "stress factors" because of over-crowding. The result is abrupt population decline. Excess mice may be forced to move into less favorable habitat where they are easy victims of predators. Diseases and parasites further limit the number of mice.

ECONOMIC IMPORTANCE

Regardless of limiting factors, meadow mice may become so plentiful that they damage crops and ornamental plants. Normal foods include native grasses, legumes, weeds, and cultivated crops such as alfalfa, clover, timothy, and other hay crops. Ornamental shrubbery and flower plants, including bulbs, may be eaten. During the colder months when green material is scarce, mice may eat the bark of trees and shrubs. Such feeding, if permitted to continue, may result in complete girdling and death of plants. This is particularly true in the case of apple trees; apple bark is a winter favorite of mice. Tree seedlings are sometimes completely severed, the small stumps appearing as though they had been cut by miniature beavers. Damage of this sort usually occurs at ground level, but under cover of heavy snow, damage may occur well above the surface.

REDUCTIONAL MEASURES

Mechanical guards of 1/2-inch mesh hardware cloth will help prevent meadow mouse damage to trees and shrubs. Wire cylinders 18 to 24 inches high and 6 inches in diameter set into the ground around the trunk will help keep mice from girdling the tree. These guards will also prevent cottontail rabbit damage. Since both mice and rabbits travel in deep snow, this sort of protection is not reliable when snow depth is greater than the height of the guards.

Several alternative methods are available if it becomes necessary to protect plants by limiting meadow mice populations.

In small areas -- Mouse-sized snap traps are effective in reducing the number of mice. Traps are preferred for home grounds near ornamental shrubbery, flower beds, or rock walls. Traps should be lightly sprinkled with rolled oats, and baited with small cubes of fresh apple. Set traps so the trigger lies across the runway, and cover the trap with grass, leaves or an inverted cardboard box of appropriate size. Allow space for the trap to operate freely under the covering. Check traps twice daily, morning and evening, and reset traps until no more mice are captured.

In large areas -- For large acreages, the careful use of rodenticides is suggested. The most selective method is hand-baiting mouse runs and holes with treated baits. Since few growers can afford to spend the necessary time to seek runs or holes, treated baits may be distributed by hand broadcasting. Baits should be distributed selectively into mouse cover. Try to anticipate several days of fair weather when distributing the bait, because rain and snow reduce its effectiveness. In orchards, pine mice may occur in the same areas with meadow mice. The same toxicants are registered for both species.

In nurseries -- Rodenticides work effectively in controlling meadow mice in nurseries. Broadcasted treated bait takes care of the immediate problem. Bait stations, properly distributed and tended, are a desirable method of making bait available to mice which move into the nursery after the initial broadcast treatment. Bait stations may be made of discarded beverage cans. Enlarge the opening in the end of the can so that it is about 1 1/2 inches in diameter. Dent the side of the can. Place a tablespoonful of treated grain bait in the can, then place the can, dented side down, in the area to be protected. Short sections of 1-inch or 1 1/2-inch pipe or empty quart motor-oil cans which have been thoroughly cleaned can be used for bait stations.

The bait container should be marked with a stake or flag so it can be easily located for refilling or removal. Check occasionally to be sure that a supply of fresh bait is present. Bait in these stations is protected from weather, and is not readily available to desirable wildlife. Since mice are not attracted to the bait from any distance, it is necessary to place a sufficient number of stations to make certain that all mice find some bait. Use one container for each 80 square feet of nursery bed.

The most effective bait stations are those which are overhung by vegetation. Meadow mice shun bare areas.

EUROPEAN STARLINGS

HABITS AND DESCRIPTION

The European starling is a stocky, short-tailed, black bird slightly smaller than a robin. In summer, the adult starling has iridescent black plumage, a long, sharp, yellow bill, and dark eyes. As winter approaches, small, buff-colored spots appear in the feathers, and the bill darkens. This coloration is maintained through mid-winter, and the spots gradually fade away. The young starlings are plain brownish-gray with a dark bill, but assume the typical adult winter plumage by fall. In flight, the greatly tapered, pointed wings give the bird a triangular appearance. The flight is swift and straight--not undulating like that of native blackbirds.

Mated pairs of adult starlings begin nesting in cavities such as tree hollows, woodpecker holes, bird houses, or building crevices by mid-April. In cities, several pairs may nest as a small colony in eaves, roofs, and other structures. In general, starlings nest earlier than most native birds.

The nest is constructed of stiff, fibrous material lined with fine grass and soft material. The female lays three to eight pale greenish-blue eggs. The eggs hatch in about 12 days, and the young remain in the nest for two to three weeks. Once the young can leave the nest, they join together in flocks of gradually increasing size. The adults, however, usually re-nest and produce another brood in late July and August. A third brood may be produced in early November.

With the approach of winter, adults and young gather in large flocks that forage widely and often associate with other blackbirds, especially in the large night roosts. These roosts generally are maintained throughout the winter but begin to break up with the spring mating season. The late-hatched young remain in flocks longest.

Starlings eat almost anything and are highly adaptive in their food selection. These birds devour large amounts of insects, especially grubs, caterpillars, and grasshoppers. (They are especially efficient in probing soil for grubs.) The nestlings are fed almost exclusively on insects. Starlings are also fond of fruit, especially grapes and cherries, and will eat weed seeds and grain in season. In the winter when the ground is frozen or covered with snow, starlings will eat livestock feeds.

During the nesting season, the starling is an aggressive bird. They will often take over a nesting cavity already occupied, evict the occupants and build their own nest. After nesting, much of this individual aggressiveness abates with formation of large flocks.

Starling flocks are highly cohesive. Apparently each bird yields part of his individual identity to the larger flock identity, thus allowing the flock to bank, turn, and twist without apparent leadership or signal.

This same cohesiveness gives the flock the combined experience of its members. The arrangement may also be vital because--as biologists have noted--if the winter flocks are broken up, the individuals frequently cannot maintain themselves separately, and they die, especially during cold weather.

The starling is a constant companion of man because man inadvertently provides most of its requirements. In cities, man's fertilized lawns and parks provide excellent places for starlings to probe for grubs; his waste offers food; his buildings are excellent winter roosting places; and in the country, man's mono-cropping provides abundant food in the crops themselves or in the insects they harbor.

The starling has a variety of whistles and rasping, squeaking calls, some of which are quite harsh. It is a clever mimic, however, and can imitate the robin, killdeer, bobwhite, cardinal, and other birds.

SOCIAL AND ECONOMIC IMPORTANCE

The starling has a bad reputation. City dwellers generally dislike the bird because of its noisy, messy, winter roosts on city buildings. Not only is the roost obnoxious to ear, eyes, and nose, but the birds are known to carry contagious diseases, such as encephalitis, ornithosis, and histoplasmosis. Rural residents dislike the birds because they damage fruit and vegetable crops. (In vegetable crops, however, the starling is often only a secondary invader, continuing the damage started by grackles.) Feedlots attract starling flocks, too. Starlings not only consume large amounts of poultry, hog and cattle feed, but also spread and carry diseases of livestock. Starlings are known to be involved in transmission of hog chlorea and other diseases of swine.

GENERAL CONTROL CONSIDERATIONS

It is important to remember at all times that starlings are highly mobile, very cautious, and are capable of learned response. Thus, control procedures must be applied at a time when the birds are vulnerable, at a place at which they frequently congregate, and by a method they cannot easily recognize.

Before using any control measure, consult local laws on bird control, the use of avicides, and the use of noise devices. Starlings are not protected by state or federal laws.

Traps -- Starling traps sometimes produce good results in feedlots, crop fields, and fruit areas, but traps require effort and time to be placed and tended properly. Contact District Game Protector, Pennsylvania Game Commission, for trap plans and permits for trapping.

Crop Fields -- Frightening devices, such as exploders, firecrackers, and commercial scare devices, used correctly offer a reasonable solution for moving starling flocks away from potential damage or nuisance situations in crop fields. Seed treatment repellents may be considered for highly specialized situations.

Buildings -- Making building modifications to prevent entrance and roosting is a long-term solution to the problem. This approach is usually the most satisfactory, even though initially expensive. In specialized roosting circumstances, the use of sticky repellents may be considered.

Roosts -- Starlings will use two types of roosts during the year. The first type is the summer roost, which the birds use during July, August, and September. This is the most common type of roost. It usually contains less than 20,000 birds, is no more than 20 acres in size, and frequently is located in wooded areas adjacent to towns. Summer roost sites used by starlings usually include the following characteristics:

(1) Maple is the favored tree species. These are usually young trees, growing in dense stands, 35 to 45 feet tall and from four to six inches in diameter.

(2) The roost site is usually open and free of understory.

(3) The tree canopy is very dense with many small branches for perching.

Scare devices are usually very successful in moving birds from this type of roost. The key to success in moving summer starling roosts is to start early in the summer before the roost has become firmly established. Starlings have usually finished the first nesting and have begun to establish roosts by July.

The following equipment will be needed to deal with summer roosts: A portable record or tape player with loudspeaker; a record or tape of a starling distress call; two 12-gauge shotguns with four boxes of ammunition (7 1/2 shot); three boxes of exploding shotgun shells (cracker shells), or two automatic exploders.

The operation will require three people for three consecutive nights and should begin one-half hour before sunset. One man will play the starling-distress-call record. It should be played for five minutes at one location and then moved approximately 100 to 150 yards to a new location in the roost. The remaining two men will handle the shotguns. Before entering the roost, starlings gather at a staging area that is usually not more than one-half mile from the roost. Shooters should fire exploding shotgun shells at the incoming flocks as they move from the staging area to the roost, in an effort to turn the flocks back. As the birds begin roosting, the gunners should switch to Number 7 1/2 shot. While exploding shells frighten starlings, the effectiveness is greater if some starlings are killed.

In residential areas where the discharging of firearms is prohibited, shotguns may be replaced by automatic carbide exploders. These should be continued until one hour after sunset.

No significant reduction in the number of starlings is usually seen at the end of the first night. However, fewer birds will return to the roost on the second evening. Regardless of the size of the original roosting flock, fewer than 50 birds should be left at the roost by the end of the third night. At this time the operation should cease.

The second type of roost is the winter roost, which is used by starlings from October through March. This type is commonly located on buildings in cities, under bridges and in dense stands of coniferous trees; it may contain one-half million birds or more. Scare devices are not effective on large winter roosts.

Livestock feed lots and poultry operations -- A difficult problem in starling control at livestock operations is determining where to bait the birds. Each starling flock has a preference for time of feeding, place of feeding, and favored type of food material. The treated bait must resemble the regular feed, and it must be placed where the starlings will find and accept it. Since the birds normally eat from the feed trough, the treated bait must be placed near, but must be inaccessible to the livestock.

WOODCHUCKS

HABITS AND IDENTIFICATION

The woodchuck--also known as groundhog and whistle pig--is one of Pennsylvania's most widely distributed animals. It is legally classed as a game animal.

In general, the woodchuck seems to prefer to construct his burrow on or near farm land where crops grow, but he may also be found in woodlands, in abandoned brushy farm lands and occasionally in urban areas where the combination of food and cover provides satisfactory habitat.

The woodchuck is the largest member of the squirrel family. His compact, chunky body is supported by relatively short strong legs. His tail is short and bristly. His forefeet have long, curved claws that are adapted for digging ground burrows where he seeks refuge and hibernates during winter months. His color is usually a grizzled brownish-grey, although throughout the species fur color will vary from white to black. Woodchucks have chisel-like incisor teeth that enable the animal to gnaw well.

Woodchucks eat a broad variety of vegetation, and especially enjoy domestic legumes. In the early mornings and evenings during the summer, woodchucks feed on succulent, green vegetation in preparation for hibernation during late fall. They emerge from hibernation in early February, and mate in March and April. Gestation requires about 28 days. A single litter, with two to six (usually four) young, is produced each season. The young are weaned by late June or early July, and soon after strike out on their own, usually occupying old, abandoned dens. The numerous new burrows which appear during the late summer are dug by older woodchucks.

The normal range of the woodchuck is between 1/4 and 1/2 mile from his den. They are usually sanitary at their den sites, and will clean their burrows and replace nest materials annually. The den system is frequently used for several seasons.

ECONOMIC IMPORTANCE

The woodchuck furnishes considerable sport shooting for rifle enthusiasts and landowners. A medium-sized "chuck" (if properly prepared) is good to eat, although few people do so. Dens and burrows that are not being used furnish escape cover for cottontail rabbits and other wildlife.

The feeding and burrowing habits of chucks may conflict with other land uses. They feed in hay or crop fields, home gardens, orchards, and nurseries; and the burrows and mounds may be hazardous to farm equipment or to horses and riders. For these reasons, reductional measures may be necessary.

REDUCTIONAL MEASURES

Certain restrictions govern woodchuck control. As a game animal, certain seasons are established for shooting woodchucks. Woodchucks whose burrows are in cultivated fields can be legally killed by fumigation, trapping, or digging. These three methods are permitted only for resident landowners who cultivate their land for a living. These control practices do not apply to other game animals.

Shooting -- Rifles with telescopic sights have encouraged the development of sport hunting of woodchucks. Check current hunting regulations for dates and times of legal shooting. Landowners and hunters should agree on arrangements that will be mutually satisfactory and that will avoid unsafe shooting practices.

Gassing -- Gas cartridges and other fumigants may be used in dens and cultivated fields by landowners and their employees. These fumigants produce toxic gasses which accumulate in lethal amounts when confined within the burrow system. Since a burning material is involved in the gas cartridges, do not use them in dry grass or near buildings.

Trapping -- Resident farmers and their employees may trap woodchucks in cultivated fields. Woodchucks may be trapped with steel traps or with box traps made of wood and wire mesh. A number 2 steel trap is needed. Bait traps with apples or fresh fruits. Check traps twice daily--morning and evening--so that captured animals may be dealt with in a humane manner.

CONTROL OF VERTEBRATE PESTS OF AGRICULTURAL CROPS

CHEMICAL SUGGESTIONS

All chemicals listed are from the EPA Compendium of Registered Pesticides, Volume IV, and supplements 1 and 2.

SPECIES	REPELLANTS	TOXICANTS	FUMIGANTS	COMMENTS
BLACKBIRDS	captan turpentine water gas tar	Starlicide Avitrol		
CROWS	coal tar captan turpentine water gas tar	Avitrol		See Game Law
DEER	thiram ziram bone oil			Game animal--see Game Law
MICE, MEADOW	thiram	zinc phosphide		
MICE, PINE		zinc phosphide		
STARLINGS, EUROPEAN	sticky compounds naphthalene turpentine	Avitrol Starlicide		
WOODCHUCKS			gas cartridges* calcium cyanide	Game animal--see Game Law

* Gas cartridges are mixtures of: carbon, lead oxide, mineral oil, phosphorous, potassium nitrate, sodium chlorate, sodium fluoride, sodium fluosilicate, sodium nitrate, and sulfur.

Native birds are protected by both state and federal laws. The European starling and the English sparrow, both introduced birds, have no legal protection.

Three species--the ring-necked pheasant, mourning dove, and the crow--are protected during much of the year but may be legally taken during open gunning seasons established by the Pennsylvania Game Commission. These birds occasionally cause agricultural damage when they feed on newly planted grain. This sort of depredation may be lessened by treating the seeds with registered bird repellents.

No toxicants are registered for dealing with problem game birds.

While depredations permits are required under federal law for dealing with most species of birds, 50 Code of Federal Regulations 21.43 states, "A federal permit shall not be required to control yellow-headed, red-winged, tri-colored red-winged, and Brewer's blackbirds, cowbirds, all grackles, crows, and magpies when found committing or about to commit depredations upon ornamental or shade trees, agricultural crops, livestock, or wildlife, or when concentrated in such numbers and manner as to constitute a health hazard or other nuisance."

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